

IN THE CLAIMS

Please cancel claim 6 without prejudice or disclaimer of subject matter.

Please amend claims 5, 17, and 26 as follows.

1 - 4. (Cancelled)

5. (Currently Amended) An image pickup device comprising:

a plurality of pixels each including a photoelectric conversion unit, a semiconductor area floating diffusion region to which a signal from said photoelectric conversion unit is transferred, a transfer switch to transfer the signal from said photoelectric conversion unit to said semiconductor area; floating diffusion region, and a read unit an amplifying transistor whose gate is connected to said floating diffusion region to read out the signal from said semiconductor area floating diffusion region; and

a drive circuit coupled to said plurality of pixels to output a pulse wave form signal for controlling said transfer switch so that a time during which said transfer switch changes from an ON state to an OFF state becomes longer than a time during which said transfer switch changes from the OFF state to the ON state,

wherein, during the ON state, charge is transferred from said photoelectric conversion unit to said floating diffusion region.

6. (Cancelled)

7. (Previously Presented) The device according to Claim 5, wherein said photoelectric conversion unit includes an embedded photodiode.

8. (Previously Presented) The device according to Claim 5, further comprising an analog/digital conversion circuit adapted to convert a signal from each of said plurality of pixels into a digital signal,
a signal processing circuit adapted to process the signal from said analog/digital conversion circuit, and
a recording circuit adapted to record the signal processed by said signal processing circuit.

9. (Withdrawn) An image pickup device comprising:
a plurality of pixels each including a photoelectric conversion unit, a semiconductor area to which a signal from said photoelectric conversion unit is transferred, a transfer switch adapted to transfer the signal from said photoelectric conversion unit to said semiconductor area, and a read unit adapted to read out the signal from said semiconductor area; and
a drive circuit adapted to control said transfer switch,
wherein a substantial driving force of said drive circuit for changing said transfer switch from an OFF state to an ON state is higher than a substantial driving force for changing said

transfer switch from the ON state to the OFF state.

10. (Withdrawn) A device according to Claim 9, wherein said read unit includes an amplification transistor for amplifying and outputting the signal in said semiconductor area.

11. (Withdrawn) A device according to Claim 9, wherein said photoelectric conversion unit includes an embedded photodiode.

12. (Withdrawn) A device according to Claim 9, further comprising an analog/digital conversion circuit adapted to convert a signal from each of said plurality of pixels into a digital signal,

a signal processing circuit adapted to process the signal from said analog/digital conversion circuit, and

a recording circuit adapted to record the signal processed by said signal processing circuit.

13. (Withdrawn) An image pickup device comprising:
a plurality of pixels each including a photoelectric conversion unit, a semiconductor area to which a signal from said photoelectric conversion unit is transferred, a transfer switch adapted to transfer the signal from said photoelectric conversion unit to said semiconductor area, and a

read unit adapted to read out the signal from said semiconductor area; and
a drive circuit adapted to control said transfer switch,
wherein said transfer switch comprises a transistor of a first conductivity type, and said
drive circuit includes at least a structure formed by connecting the transistors of the first
conductivity type in series.

14. (Withdrawn) A device according to Claim 13, wherein said read unit includes an
amplification transistor for amplifying and outputting the signal in said semiconductor area.

15. (Withdrawn) A device according to Claim 13, wherein said photoelectric conversion
unit includes an embedded photodiode.

16. (Withdrawn) A device according to Claim 13, further comprising
an analog/digital conversion circuit adapted to convert a signal from each of said plurality
of pixels into a digital signal,

a signal processing circuit adapted to process the signal from said analog/digital
conversion circuit, and

a recording circuit adapted to record the signal processed by said signal processing
circuit.

17. (Currently Amended) An image pickup device comprising:

a plurality of pixels each including a photoelectric conversion unit, a semiconductor area to which a signal from said photoelectric conversion unit is transferred, a transfer switch to transfer the signal from said photoelectric conversion unit to said semiconductor area, and a read unit to read out the signal from said semiconductor area; and

a drive circuit coupled to said plurality of pixels to output a signal to control said transfer switch so that a fall speed V_{off} for changing said transfer switch from an ON state to an OFF state has a relation $10 \text{ V}/\mu\text{sec} > V_{off}$.

18. (Previously Presented) The device according to Claim 17, wherein said read unit includes an amplification transistor for amplifying and outputting the signal in said semiconductor area.

19. (Previously Presented) The device according to Claim 17, wherein said photoelectric conversion unit includes an embedded photodiode.

20. (Previously Presented) The device according to Claim 17, further comprising an analog/digital conversion circuit adapted to convert a signal from each of said plurality of pixels into a digital signal,

a signal processing circuit adapted to process the signal from said analog/digital conversion circuit, and

a recording circuit adapted to record the signal processed by said signal processing circuit.

21. (Withdrawn) An image pickup device comprising:
a plurality of pixels each including a photoelectric conversion unit, a semiconductor area to which a signal from said photoelectric conversion unit is transferred, a transfer switch adapted to transfer the signal from said photoelectric conversion unit to said semiconductor area, and a read unit adapted to read out the signal from said semiconductor area; and
a drive circuit adapted to control said transfer switch,
wherein said drive circuit includes a constant current circuit.

22. (Withdrawn) A device according to Claim 21, wherein said read unit includes an amplification transistor for amplifying and outputting the signal in said semiconductor area.

23. (Withdrawn) A device according to Claim 21, wherein said photoelectric conversion unit includes an embedded photodiode.

24. (Withdrawn) A device according to Claim 21, further comprising
an analog/digital conversion circuit adapted to convert a signal from each of said plurality of pixels into a digital signal,
a signal processing circuit adapted to process the signal from said analog/digital

conversion circuit, and

a recording circuit adapted to record the signal processed by said signal processing circuit.

25. (Cancelled)

26. (Currently Amended) A drive method for an image pickup device including a plurality of pixels each including a photoelectric conversion unit, a semiconductor area floating diffusion region to which a signal from said photoelectric conversion unit is transferred, a transfer switch to transfer the signal from said photoelectric conversion unit to said semiconductor area floating diffusion region, and a read unit an amplifying transistor whose gate is connected to said floating diffusion region to read out the signal from said semiconductor area floating diffusion region, comprising:

an output step of outputting a pulse wave form signal to control said transfer switch so that a time during which said transfer switch changes from an ON state to an OFF state becomes longer than a time during which said transfer switch changes from the OFF state to the ON state, wherein, during the ON state, charge is transferred from said photoelectric conversion unit to said floating diffusion region.

27. (Previously Presented) A drive method for an image pickup device including a plurality of pixels each including a photoelectric conversion unit, a semiconductor area to which a signal from said photoelectric conversion unit is transferred, a transfer switch to transfer the signal from said photoelectric conversion unit to said semiconductor area, and a read unit to read out the signal from said semiconductor area, comprising:

an output step of outputting a drive signal to control said transfer switch so that a fall speed V_{off} for changing said transfer switch from an ON state to an OFF state has a relation $10 V/\mu\text{sec} > V_{off}$.

28. (Cancelled)